1st International Electronic Conference on Food Science and Functional Foods

A PRELIMINARY STUDY ON THE INCORPORATION OF QUINOA FLOUR IN ORGANIC PUMPKIN CREAMS: EFFECT ON THE PHYSICOCHEMICAL PROPERTIES

José Ángel Pérez-Álvarez, Carmen María Botella-Martínez, Casilda Navarro-Rodríguez de Vera, Estrella Sayas-Barberá, Manuel Viuda-Martos, Juana Fernández-Lopez, Elena Sánchez-Zapata·

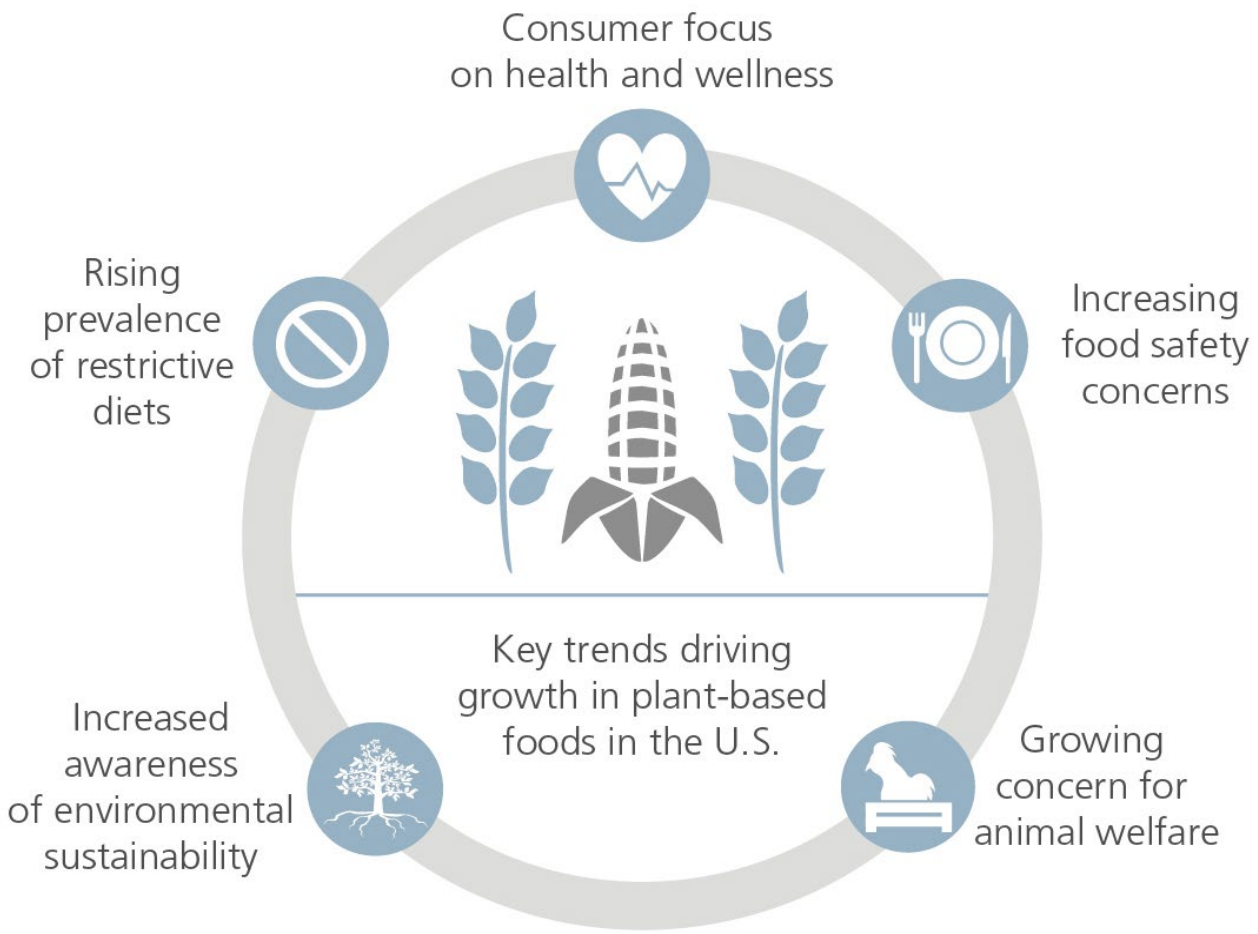
IPOA Research Group, Agro-Food Technology Department, Higher Polytechnic School of Orihuela, Miguel Hernández University, Orihuela, Alicante, Spain

· SURINVER, Laboratorio de productos de V Gama. Pilar de la Horadada. Alicante, Spain.

Corresponding author: ja.perez@goumh.umh.es

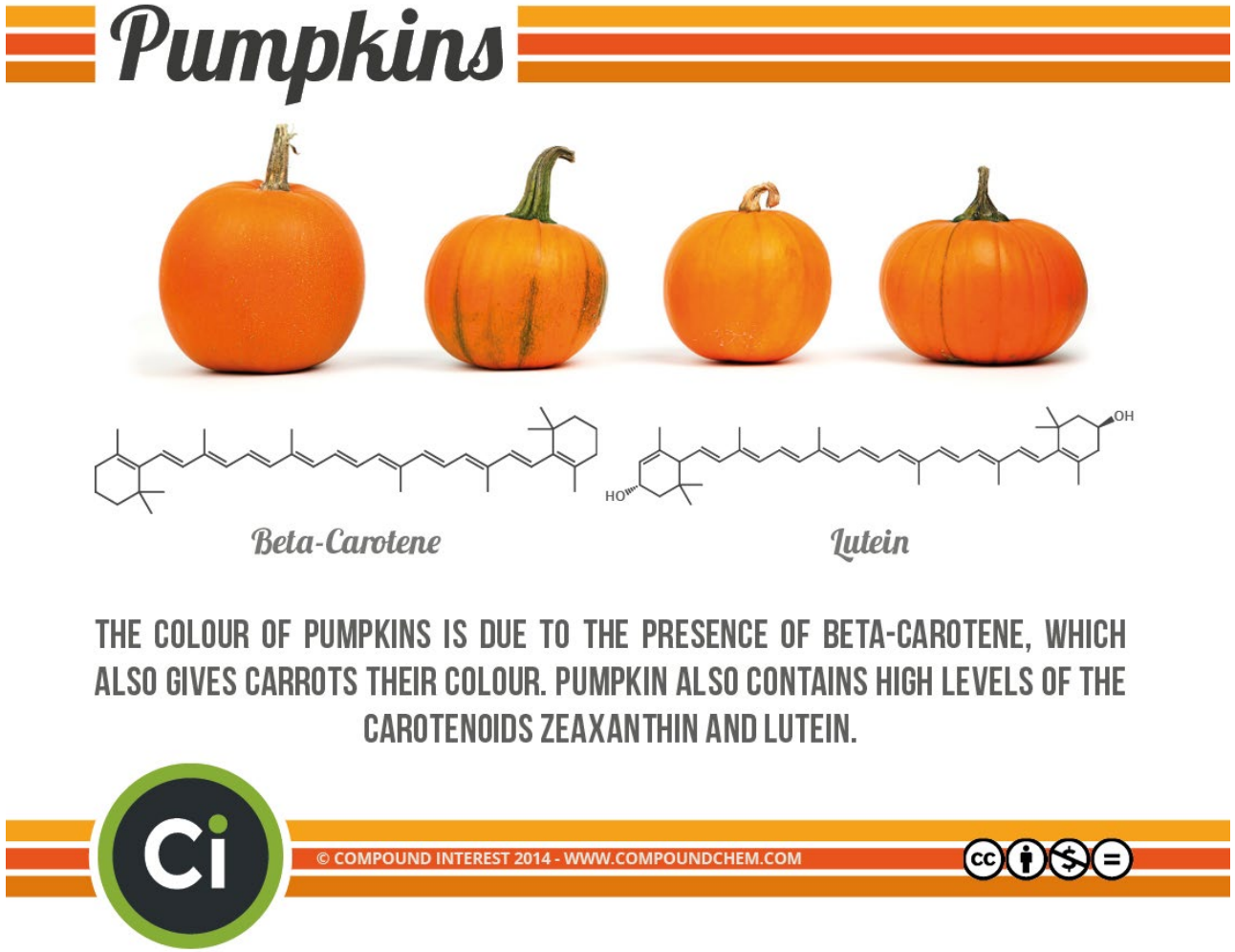
INTRODUCTION

Figure 1
Consumer trends



Source: L.E.K. analysis

INTRODUCTION



+ DIETARY FIBER

INTRODUCTION

MATERIALS AND METHODS

Organic pumpkin

Organic quinoa flour

ORGANIC PUMPKIN CREAMS (OPC)

CONTROL

+ QUINOA FLOUR

- 3 %
- 6 %

STORAGE TIME: 60 days

MATERIALS AND METHODS

- Water activity
- pH
- Colour properties

SELF-LIFE STUDY

Day 0 → Day 30 → Day 60

RESULTS

Table 1.- Mean and standard deviation of pH, water activity (Aw), and CIELAB colour parameters (L*: lightness; a*: red/green co-ordinate (+/-); b*: yellow/blue co-ordinate (+/-) of an organic pumpkin cream (OPC) added with several organic quinoa flour concentration (0, 3 and 6%) during the storage time (0, 30, 60 days).

Time (days)	Parameter	OPC (0%)	OPC (3%)	OPC (6%)
0	pH	4.69±0.01Aa	4.90±0.01Ba	5.00±0.01Ca
	Aw	0.967±0.003Aa	0.968±0.002Aa	0.969±0.002Aa
	L*	56.61±0.54Aa	59.04±0.43Ba	61.40±0.40Ca
	a*	10.80±0.11Aa	10.05±0.13Ba	9.58±0.14Ca
	b*	40.79±0.54Aa	39.66±0.42Ba	37.53±0.32Ca
	ΔE*	-	1.54±0.2	5.32±0.4
30	pH	4.67±0.02Aa	4,85±0.01Bb	4.98±0.01Ca
	Aw	0.970±0.001Aa	0.971±0.002Ab	0.972±0.001Aab
	L*	54.44±0.56Ab	57.96±0.99Bb	59.89±0.59Cb
	a*	10.21±0.11Ab	9.82±0.16Bb	9.14±0.13Cb
	b*	37.87±0.49Ab	37.67±0.74Abc	35.01±0.43Bb
	ΔE*	7.02±0.3	0.92±0.02	1.15±0.02
60	pH	4.73±0.01Ab	4.91±0.02Ba	5.03±0.01Cb
	Aw	0,973±0.001Ab	0,973±0.001Abc	0.974±0.001Ac
	L*	55.21±0.28Ac	59.92±0.93Ba	61.11±0.49Ca
	a*	9.90±0,09Ac	9.88±0.11Ab	9.34±0.02Bc
	b*	37.94±0,28Ab	38.91±0.91Aab	35.77±0.28Bb
	ΔE*	6.01±0.09	4.34±0.03	2.55±0.04

[a-c] Similar values in the same column indicates not significant differences (P>0.05)
[A-C] Similar values in the same row indicates not significant differences (P>0.05)

CONCLUSIONS

- This work is a practical application in an industrial scale for the use of "ready to measure" parameters to evaluate important properties that can decide the reformulation or acceptation of the product to scale up to make a local consumer test.
- In a practical point of view organic quinoa flour increased pH, did not affect water activity of the organic pumpkin cream and, the OPC matrix masked any colour effect that quinoa flour could have in this product.

FUNDING AND ACKNOWLEDGMENTS

- This work was supported by SOL NEW FOOD. AGCOOP_D/2018/014. Ayudas para la cooperación en el marco del programa de Desarrollo Rural de la Comunidad Valenciana 2014-2020 CAMACCyDR (53 % UE- Feader, 8,86 % MAPA, and 38,14 % CAMACCyDR)

surinver

UNIVERSITAS Miguel Hernández